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尼日利亚铁路客运服务质量评价

摘要

铁路服务质量是通过广泛充分程度的价值来评价的。本文根据铁路客运的特点，建立了尼日利亚铁路客运服务质量的领先体系，并采用模糊层次分析法确定领先权重。使用了 200 份问卷的样本量，但使用模糊综合理论分析仅完成和分析了 152 份。结果显示，大部分乘客认为列车时刻表信息的提供不足。研究还表明，只有少数乘客认为机上安全水平足够有效。虽然阿布贾-卡杜纳铁路运输服务的大多数人认为车站设施的清洁和维护，尤其是维护很差和不足。火车已成为最可行的替代方案之一，尤其是对于日常通勤而言。虽然公交机构对客流量的增加感到兴奋，但他们也面临着更高的客流量和现有车站更长的排队队伍的挑战。为改善当前状况并规划未来，交通机构正在使用模拟工具来帮助评估车站设计、队列管理、票价设备设计和票价政策影响。他们还面临着更大的客流量和现有车站更长的排队队伍的挑战。为改善当前状况并规划未来，交通机构正在使用模拟工具来帮助评估车站设计、队列管理、票价设备设计和票价政策影响。他们还面临着更大的客流量和现有车站更长的排队队伍的挑战。为改善当前状况并规划未来，交通机构正在使用模拟工具来帮助评估车站设计、队列管理、票价设备设计和票价政策影响。列车运行计划是基于列车运行区间的客流数据。合理的列车运行方案，既能满足乘客的需求，又能节省列车运行成本。该项目的主要目的是对尼日利亚铁路客运的服务质量进行评估，这将支持改进决策，以确保铁路基础设施的妥善管理和乘客服务质量的安全，同时响应乘客的需求。建议在可接受的水平。中央铁路标准轨距线。1987 年，签订了建造中央线的合同，这是一条标准轨距铁路，将 Itakpe 的铁矿床与位于科吉州和大西洋瓦里港的 Ajaokuta 钢厂连接起来。这条铁路原计划在五年内建成，但零星的资金使建设工期延长了三十多年。

全长 320 公里的标准轨距线路已建成，2018 年试运行，现已投入运营。铁路运输是通过在铁轨上运行的轮式车辆运送乘客和货物的一种方式。与车辆仅在准备好的路面上行驶的公路运输相比，铁路车辆由它们行驶的轨道定向引导（Wolmar，2009）。轨道通常由安装在轨枕上的钢轨组成，通常装有金属轮子的机车车辆在轨枕上移动。然而，其他变体也是可能的，例如轨道固定在混凝土基础上的平板轨道，该混凝土基础位于准备好的地下（Skempton，2002）。火车是沿轨道移动的一系列连接的轨道车辆。火车的推进由单独的机车或自走式多个单元中的单个电机提供。大多数火车都有收入负荷，尽管存在非收入车厢供铁路工作人员使用，例如用于维护轨道目的。发动机驱动器控制机车或其他动力车（美国铁路工程和道路维护协会（AREMA），2003）。铁路运输是最安全的陆路旅行方式之一，能够以非常高的速度行驶，但它们很重，无法偏离轨道，需要很远的距离才能停下来（美国交通统计局，2010）．铁路为人们提供了新的出行机会，打破了旧有的文化隔阂，扩大了普通民众的社会交流。有时，火车站是人们相遇和交流的地方，是上班和更广阔世界的出发点和到

达点（Jean，1981 年）。值得注意的是，Warri-Itakpe 标准轨距线最初是为运输铁矿石和成品钢而设计的，但后来通过沿铁路线修建客运火车站进行了改造，以适应客运服务。将来自不同研究人员的文献研究与以往案例研究中的服务质量评估，以及从火车站、互联网收集必要的信息结合起来，并将相关解决方案应用于尼日利亚铁路客运。更何况，为尼日利亚阿布贾-卡杜纳站铁路客运服务质量现有质量评价方法的不足之处编制蓝图。尽管联邦政府致力于实施铁路运输分部门的 25 年战略计划，作为社会经济转型议程的关键组成部分，促进铁路运输并确保良好的维护礼仪。战略铁路计划，包括修复所有现有的窄轨铁路线、建设新的标准轨距线及其在该国的运营和维护。这将需要潜在的巨大资源，其中大部分预计将通过私营部门投资获得资源，为尼日利亚人民提供具有全球可比性的现代化铁路系统和良好的服务质量。战略愿景的唯一目标是连接所有 36 个州和阿布贾 FCT，并提供通往该国机场和河港码头的铁路连接，从而减轻尼日利亚公路网络的压力，该网络目前处理超过 80% 的乘客和货物运输。缺乏功能性的铁路系统极大地阻碍了公路网络的寿命及其对国家财政的负面影响。阿布贾至卡杜纳标准轨距铁路将阿布贾首都与卡杜纳市连接起来，卡杜纳市是开普轨距铁路网的重要交汇点。这条 186 公里的线路是规划中的拉各斯-卡诺标准轨距铁路的第一段，已完成。2016 年，联邦政府通过联邦交通部正式开通了这条商业服务线路。Abuja-Kaduna 是一条 186 公里的标准轨距铁路线，从阿布贾附近的 Idu 到尼日利亚西北部地区的 Kaduna。它有九个车站，设有客运和货运列车。铁路运输被描述为一种替代运输方式的方式，因为它可以降低大量乘客的成本和时间管理。铁路服务的质量可能是使铁路真正替代其他方式的方式之一。因此，研究人员对铁路服务质量在乘客的服务和满意，但结果不是绝对的。

2019 年 10 月，联邦政府批准通过 PPP 安排实施合同，将铁路延伸至阿布贾，直至尼日尔州的巴罗港。拉各斯到卡诺和卡诺到马拉迪（尼日尔共和国）标准轨距线。2006 年，政府与中国土木工程建设总公司 (CCECC) 签约建设拉各斯-卡诺标准轨距铁路。由于缺乏必要的资金，后来决定分段完成该项目。经过多次延误，从阿布贾到卡杜纳（186 公里）的路段于 2016 年 7 月 26 日正式开通。拉各斯-伊巴丹路段于 2017 年 3 月开工建设，在收购机车和机车车辆后于 2020 年 12 月完工并开始运营客运和货运服务。该项目旨在连接国家两个最大的城市，西南部的大西洋港口拉各斯和北部靠近尼日尔共和国边境的卡诺，途经第三大城市伊巴丹（也在西南部）和国家首都阿布贾在中心。这条铁路将与英国建造的 Cape 轨距线平行。标准轨距线的另一段是 Ibadan-Ilorin、Ilorin-Minna、Minna-Kaduna 和 Kaduna-Zaria-Kano。建设标准轨距铁路线的安排已进入前期阶段，通过道拉和卡齐纳将卡诺与马拉迪连接起来。拟议中的铁路线预计将用于尼日利亚联邦共和国和尼日尔共和国之间的社会经济活动。沿海铁路线；从拉各斯到卡拉巴尔的沿海铁路的建设已经完成了实质性的准备工作。政府已批准资金来自尼日利亚的外国负荷和对应资金。该项目预计将跨越西南、东南和南南地缘政治区的各州。为了进一步促进在尼日利亚城市中心使用铁路服务，一些地铁系统正在运行或正在建设中：2017 年底开通的阿布贾轻轨、拉各斯轨道交通、哈科特港的河流单轨、卡拉巴尔单轨、卡杜纳州轻轨。本文在对旅客进行问卷调查的基础上，发展了旅客满意度服务质量的多层次综合评价理论。过去，美国工业主要关注满足内部质量或技术标准。今天的重点已经转移到量化客户对服务和产品的评估（外部测量），然后将这些测量转化为特定的内部标准。然而，对如何衡量服务质量的关注较少，几乎没有关于如何设计衡量标准和评估其有效性的信息。在当今竞争日益激烈的环境中，优质服务对企业成功至关重要。研究表明，提供高质量与许多行业的利润、成本节约和市场份额密切相关。研究发现，利润的增加是由于以下几个因素：更少的客户流失。更强的客户忠诚度。更多产品和服务的

[illegible]/[illegible] 2009 [illegible] 2009 [illegible] 2016 [illegible] 7 [illegible]-[illegible]·[illegible]（Wojuade&Badiora, 2017, Eniola& Dada, 2018, Oluwaseyi&Olaniyi, 2018 [illegible] Pious [illegible]-[illegible]-[illegible]（Pius，Nwaogbe [illegible]2017 [illegible] 1997 [illegible] CCECC [illegible] 2007 [illegible] 5 [illegible] 1 [illegible] 3[illegible]42.5 [illegible]26.4 [illegible] 12 [illegible] 2018 [illegible] 7 [illegible] Idu [illegible]-[illegible] 290 [illegible]180 [illegible] 8.24 [illegible]60%[illegible]2018 [illegible] Idu [illegible] 2020 [illegible] 2020 [illegible]Adesanya，2002 [illegible]Adesanya，2010 [illegible]

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Evaluation on Rail Passenger Transportation Service Quality in Nigeria

ABSTRACT

Railway service quality is evaluated by the value of an far-reaching adequate degree. This thesis establishes the lead systems of the service quality of railway passenger transportation in Nigeria based on the characteristics of railway passenger transportation and determine the lead weights with the fuzzy analytic hierarchy process. The main purpose of this project is to perform an evaluation on the service quality with the railway passenger transportation in Nigeria, this will support the improvement decision making so as to ensure the proper management of railway infrastructure and passenger service quality is safe while responding to passenger's suggestion at an acceptable level. A literature study from different researchers from previous case study on service quality evaluation, and collection of necessary information from the railway station, internet have been put together and the relevant solution are applied to the Nigerian railway passenger transportation. More so, to prepare a blue print for the deficiencies of the present quality evaluation method of railway passenger transportation service quality in Abuja-Kaduna station, Nigeria. This thesis develops the multilevel synthetic evaluation theory of the service quality of passenger satisfaction based on the questionnaire survey given to the passengers. This thesis experiments

the model with the survey from the Abuja-Kaduna station, of which was carried out using an online survey questionnaire which can not only expand extension application areas, but also provides new ideas and means for the evaluation of the service quality of passenger transportation along the sections of Abuja-Kaduna Stations. In a view to suggest possible areas of improvement. The objective is to evaluate six service dimensions; to capture what the commuters are thinking about their services. Before now, Nigeria's rail network has received very little attention from the scholars and the rail operators are focusing on the tick boxes exercise for regulator and government contentment, instead of them striving to provide a better service experience and become passenger centric operators in their strategies for loyalty and repeat usage.

Key words ： Railway Passenger transportation, Service quality Evaluation.

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Chapter 1 Introduction

This chapter provides an overview of the study's scope and purpose, as well as a review of relevant literature.

1.1 Research background

We cannot exaggerate the significance of transportation. Every country's economy relies heavily on its transportation infrastructure, and a well-functioning transportation system directly affects and contributes to that economy's growth and development. Transportation is the transfer of commodities and people from one location to another. The Nigerian railway system, that should have been a feasible alternative to the road in terms of cost, time, decrease in both accidents and gas emissions, was in shambles and practically defunct before to 2009. It wasn't until 2009 that new investment in the train system was resurrected. In July 2016, President Muhammadu Buhari's administration completed the Abuja-Kaduna project. Increasing the dependability and quality of service for passengers is one strategy to improve the number of people who use the railways. Customers' expectations are well-placed as the government works to stabilise the railway system. The long-term viability of public transportation relies heavily on the satisfaction of its users. Figures like these show passengers' responses as a direct result of government and industry goods and services. How passengers feel about the service they get from the operators is referred to as passenger satisfaction (NRC).

As a result, specialists and academics in the field of public transportation have conducted extensive evaluations of service quality

concerns in recent years. Passenger happiness in Nigeria is a topic that has been studied extensively by a number of scholars. Rail transportation in Nigeria dates back to 1898 in Lagos, making it one of the country's earliest modes. Since then, it has spread throughout the country, and rail transportation has been widely credited with playing an important role in the nation's socioeconomic transition and growth. An organisation that oversees, regulates, and governs rail transportation is known as the National Rail Corporation (NRC) (NAT, 2002). As a result, poor service delivery is a key issue confronting Nigeria's publicly owned transportation companies (NRC, 2012; Esan, 2010). The rail corporation confronts with the challenges of offering efficient transport service to serve the needs of passengers and guarantees value for money, but this goal seems to be unachieved utopia, due to several factors; moribund traffic, migration, weak infrastructure and poorly motivated staffs have been diminishing its capacity to meet passenger needs, resulted in a huge loss to income for the corporation (NRC, 2012; Esan, 2010). Incidentally, past studies have focused on the established rail networks; as a result limited attention is given for the quality of service and performance at the NRC, where this paper investigates.

1.2 Research significances

In the last several decades, Nigeria's railway system has been plagued by problems. Currently, rail transport provides just a tiny percentage of the total value created in the transportation system. Nigeria's railway network is now only running between Lagos and Kano, Abuja, and Kadua, according to rumours; operations in the South East Zone have ended since 2004. In the North Central Zone as well as North West Zone, it has been operating partially in freight carriages. To put it another way, these

changes have led to the demise of the railways, which has had a significant impact on the condition of our roads and greenhouse gas (GHG) emission levels in our nation. In previous research, experts claim that roads account for 90% of all city mobility, with autos making up the vast majority of that percentage. This issue in Nigerian railway transportation has been blamed on a number of causes including inadequate management and maintenance as well as a lack of a functioning transport strategy by many studies including Rail News, Adesenya, Abu-Bakr and Ademiluyi and Odeleye and Dina. There have been a number of initiatives to solve these issues in recent years in order to resuscitate the railway transit. For a while, international corporations were given impromptu contracts to improve the country's railway transportation system. Over fifteen years, Rail India Technical and Economics Services was contracted to repair and construct a standard-gauge railway line in Nigeria in an attempt to reinvigorate the railway subsector (1978-1992). The Third National Development Plan included this. During the government of President Babangida, Ogbemudia was named sole administrator of the NRC and a contract for rolling stock was issued to Romania. The Ogbemudia Revolution occurred during this time period. There were 10 years left on the deal (1986-1996). Like Abacha did 15 years earlier in 1995 when he contracted China Civil Engineering Construction (CCECC) to renovate the country's railway system and provide new locomotives, coaches, and waggons. CCECC was given fifteen years to complete the project. In addition, as part of the third national development plan, the Obasanjo government awarded a contract to CCECC in 1999 for repair, rebuilding, and construction of standard gauge railway. In 2006, as part of a seven-point plan to restore the nation's railroads, the current government came up. The government's

restoration and modernisation plan for the rail structure. A total of 25 new locomotives were purchased, and a new Nigerian railway statute was prepared to update the antiquated and backwards-looking 1955 Act. As of October 2011, the measure was pending a second reading in the National Assembly (Rail). The breakdown of the yearly budget also reveals that the National Research Council (NRC) has received a rise in funding. Rail transportation is inefficient, despite the federal government's efforts to improve the system over the years. Specifically, the present improvements in Nigeria's railway transportation system are aimed at attracting private sector participation. As a result, the Nigerian railway transportation system has experimented with two management options: the public management option under the NRC and the private sector concession option. As shown by literature, this is in accordance with best practises in railway infrastructure and service delivery. The country's ongoing rail transportation issue continues unabated, and various forecasts about the sector's future performance have been made. While many forecasts are founded on conjecture, there is no evidence to back them up. As a consequence, nothing is known about how Nigeria's railway transportation system performed under the two different management styles. There are several factors that need to be taken into consideration while repositioning the railway transport subsector to satisfy the mobility demands of a teeming population throughout the nation. As a result, this research examined the level of service provided by Nigeria's railways for passengers between 1995 and 2021. Nigerian railway passenger transportation service quality is the focus of this study. To achieve this goal, two hypotheses were formulated and evaluated in this research. The first is that the performance of Nigeria's railways under the two different management regimes has been almost identical

(H1). There is no substantial variance in the performance of railway districts across Nigeria's geopolitical zones, according to hypothesis (H2). Using too much secondary data, which is typical of historical research of this kind, the present study was unable to go beyond 1995 because of a lack of current, accurate statistics, thereby restricting its research window (1995 - 2021). To be sure, the research is useful in determining how well the Nigerian transportation system performed during a period from 1995 to 2021 in terms of the amount of passengers, freight, and income it earned during this period. Knowledge is gained by determining which of the two management alternatives may improve performance in Nigeria's railway transport system; hence, it provides input for policy-making and management practises in the railway transport sub-sector of Nigeria.

1.3 Literarture Review

Rail travel in Nigeria has been a nightmare for the last three decades. Only a tiny portion of the delivery sub-area, and a negligible fraction of the overall cost of transportation, is accounted for by railway delivery today. This based on anecdotal evidence, Lagos to Kano and Abuja to Kaduna are the most active parts of Nigeria's railway network today, although the South East Zone hasn't been in service since 2004. It has been used in freight carriages in the North Central and North West Zones. Since these changes, street transportation has took over all of the traffic services formerly provided by railways, resulting in severe consequences for the country's roads and GHG emissions. According to previous studies, driving a vehicle is the most popular means of transportation in cities, with 90% of trips taking place on city streets. Research by Rail News, Abu-Bakr, Adesenya, Odeleye, as well as Ademiluyi and Dina, among others, blamed various problems, including poor management, poor maintenance, government neglect and a lack of a realistic delivery programme for the poor performance of Nigeria's railway transportation. This has led to a number of recent attempts to address these concerns in an effort to resurrect train service. Contracts for the redevelopment of railway transportation have been put out on the open market, but no one has taken them up. The Obasanjo administration

in 1978 gave a contract to Rail India Technical and Economic offers to repair the railway tune and build a popular gauge railway line within a fifteen-year time frame in an attempt to revive the railway sub-area (1978-1992). The Third National Development Plan included this. In 1989, President Babangida's administration nominated Ogbemudia as the NRC's sole administrator and proposed a settlement to Romania for the delivery of rolling stock. Ogbemudia Revolution was the name given to this particular length. Within a ten-year period, the settlement was established (1986-1996). Additionally, President Abacha of Nigeria in 1995 agreed to provide China Civil Engineering Construction (CCECC) fifteen years to renovate the railway system and supply rolling inventory, which included locomotives, coaches, and waggons. CCECC accepted this offer. In 1999, the administration of President Obasanjo awarded CCECC a settlement for the repair, renovation, and construction of a popular gauge railway as part of the country's third-quarter improvement plan. Officials began work on revitalising the country's railroads in 2006 as part of a seven-point plan. Rehabilitation and modernisation programme started by the government in order to fix the problem of tune structure With the purchase of 25 new locomotives, the Nigerian railway bill was revised to reflect the current state of affairs rather than the outdated and backwards legislation of 1955. As of October 2011, it was reported that the bill was anticipating a second reading in the National Assembly (Rail). In addition, a breakdown of the year's budgets shows that the National Research Council (NRC) received an increase in funding. As a result, even after many years of federal government efforts, railroad travel remains inefficient. Furthermore, attracting non-public zone investments into the business is an important objective of the current changes inside Nigeria's railway transportation system. Thus, the Nigerian railway device on the network has experimented with two control options: the public control option under the NRC and the concession option in a private sector area. With reference to the literature, this is in line with best practises in railway infrastructure and supply transit. Meanwhile, there has been a steady rise in the number of rail transportation disasters, and a few forecasts have been made about the future of the globe as a whole. A lot of forecasts are based only on hypotheses, with no actual evidence to back them up. As a consequence, information on Nigeria's railway transportation's overall performance is limited under these management regimes. The easiest control choice for relocating the railway delivery sub-region in order to meet the mobility needs of the teeming population inside the nation may be found by comprehending this. Between 1995 and 2021, the finest rail passenger carriers in Nigeria were compared in this study. The specific objectives are to determine

which Nigerian railway passenger carrier is the best. Hypotheses have been proposed and tested in this investigation as a result of that goal. The first thing to note is that the performance of Nigeria's railways hasn't changed much between the two management regimes (H1). It is hypothesised (H2) that the overall performance of the railway districts within Nigeria's geopolitical zones does not include a large version. Because of the over-reliance on secondary statistics, which is characteristic of historical research of this kind, the current approach ran into problems with a lack of current, reliable data as early as 1995, limiting its study period to that year (1995 - 2021). It is important, however, to examine the success of Nigerian transportation in terms of people and freight transported, as well as revenues made between 1995 and 2021. Understanding is furthered by discovering which of two control options will improve Nigeria's railway delivery device; and therefore, providing input for coverage technique and control exercise in Nigeria's railway delivery sub-region..

Table1-1 Summary of **Empirical Review in Nigeria**

Name of Author(s)	SERVQUAL (Sector)	Method of Analysis
Station &Obinna, (2018)	Railway	Multiple-server queuing approach
Agunloye&Oduwaye, (2011)	Railway	Descriptive and inferential statistics
Borishade,Ogunnaike, Salau,Motilewa,&Dirisu, 2021	Education	Structural Equation Modeling (SEM)
Wojuade&Onifade, (2020)	Airline	GAP Analysis
Pius (2018)	Railway	GAP Analysis

A precise of the reviewed studies on provider nice and passenger`s pleasure in Nigeria is offered in Table 1. The above desk summarizes the empirical assessment of provider Nice in Nigeria, which indicates that no researcher has used the bushy artificial principle Evaluation within side the railway quarter to analyses the provider nice of passengers` pleasure.

The Fuzzy artificial evaluation changed into used on these studies to assess railway passenger offerings nice pleasure in Nigeria. It is an improved evaluation approach as it captures each the Number one and secondary outcomes of provider nice.

1.4 Research Content

Data collection and analysis are guided by research design guidelines that aim to strike a balance between study objective relevance and study process economy. The researcher is able to address the research question in a clear and concise manner. Cross-sectional surveys were used in this research to examine the extraordinary service provided by Nigerian railways, although the results were based on a fuzzy artificial notion. It is decided to use a cross-sectional survey approach to collect data from a large number of extraordinary individuals at a unique moment. However, a cross-sectional Survey is a framework created to be seeking for solutions to the studies survey questionnaire of "Services excellent of railway passenger transportation in Nigeria: cases take a look at of Abuja-Kaduna railway stations".

Chapter 2 Analysis on the current rail passenger transportation situation in Nigeria

2.1 Importance of railway transportation in Nigeria

The first railroad in Nigeria was established by the British colonial authorities on October 3, 1912, with the help of the Nigerian Railway Corporation, to facilitate the movement of items such as groundnuts, cocoa, and cotton from the interior to the coast.

Figure 1-1 A sectional view of NG-S

Figure 1-2 A view of NG train

As a result of this merger, the Government Railways of Lagos as well as the Baro-Kano Railway became the first national rail carrier in Nigeria. In 1955, the Nigerian Railway Corporation Act was passed, giving the company its modern call as well as the unique prison right to build and operate a rail carrier in the country. However, the device collapsed because of years of forgets about with the aid of using the successive governments. Its fall apart adversely affected the economic system with the aid of using setting greater strain on avenue transportation and nearly bringing it to a close to fall apart. Happily, the narrative has due to

the fact that started to definitely Alternate with the arrival of President Muhammadu Buhari led-administration. The revamping of the device saves clients billions of naira reduces the poor Effect of lack of confidence on our roads as those who couldn't tour with the aid of using avenue now have the option to positively change with the advent of President Muhammadu Buhari led-administration.

I. The revamping of the system saves consumers billions of naira reduces the negative impact of insecurity on our roads as people who could not travel by road now have the option to travel by train either due to insecurity and saving themselves the problem of being on highway gridlock.

II. Additionally, the high costs of highway building and maintenance have been decreased for taxpayers, and the growth of freight trains has resulted in more employment and an improved economy. Many Nigerians also affirmed this as they expressed joy when the rail system in the country finally came back to life, after efforts and promises of many governments. According to them, Federal Government's effort in revamping the rail system across the nation is already yielding results as businesses are being boosted due to ease of moving goods to locations where they are needed.

Figure 1-3 Inside view of Abuja-Kaduna trains facilities Figure 1-4 IDU station platform

Some conversation with peoples across the newly built standard gauge are as follows.

Mrs Ogbomena Robert, a native of Delta and a trader, confirmed that her business was moving well after the resuscitation of Warri-Itape railway that links Delta, Kogi and Edo. According to her, she can carry a lot of goods with ease by rail to distribute at various points of sales in the states linked by the railway." The reintroduction of the rail system is of great advantage to me and other local traders within our region. It is a thing of joy, especially to us here at this area." It is extremely important to ensure that the needs of both, the suppliers and the consumers are met, and this is made possible through the rail system, so I really appreciate the system," she said.

Mrs Chika Nwachukwu, another trader also reiterated the importance of the railway, saying that in the situation of long transit rail transport is the preferred mode of transportation." Rail transport is much faster and more dependable; this is because it is usually the least affected by traffic jams." Large volumes of goods can be shipped over greater distances and easily and it is more economical, and much quicker for transporting large volumes of cargo," she explained.

Mr. Gabriel Ukpoh, a businessman, said the importance of rail transportation to the nation's economy could not be overemphasized. According to Ukpoh, the re-introduction of railway has raised the hope of many rural women in particular, who have to transport their goods from

one location to another. “When the Warri-Itape rail line came back to live, many rural women in the community could not hold their joy and many of them took the opportunity to establish markets for petty traders along the rail corridors.

Figure1-5 The Abuja metro line platform

Figure 1-6 Crew member during a trip within Abuja city

“This alone gives you a clear picture of a thriving economy within the local regions and this is capable of contributing largely to the growth and development of the nation,” he said. The Permanent, Ministry of Transportation, Dr Magdalene Ajani, in one of her visits to Warri-Itape for inspection, expressed joy at the level of patronage and the quality of services rendered at the stations. According to her, the initial concept of the Warri-Itape railway was to convey freight (cargo) from Ajaokuta Steel Company in Kogi to Alaja Steel in Delta. She explained that considering the passenger components, the idea to upscale the infrastructure on the Warri-Itape rail route to also convey passengers was conceived following a high demand. “This, of course, is applicable to all other rail routes across the country including other regions that are yet to get their own constructed,” Ajani said. Mr Rotimi Amaechi, the Minister of Transportation, at the same time as currently examining production works at the Kano- Kaduna rail line, Reiterated the dedication of the existing management to hyperlink the usa thru rail. According to him, the choice via way of means of the Muhammadu Buhari`s led authorities to restoration the rail Machine isn’t tied to any political reason however

for the boom of the growth of the country financial system. I even have Advised people, don`t politicize railway assignment, don`t make it appearance as though there are political reason In the back of the production. The essence of railway production is to develop the financial system," he said. Amaechi expressed desire that the Kano-Kaduna railway assignment could be finished and geared up For commissioning via way of means of the president. The assignment upon of entirety could facilitate public Transportation, stimulate the improvement of the rural financial system and production Industries alongside the hall and additionally lessen the cost. Also, the latest presented agreement for a Wagon Assembly Plant in Kajola, Ogun is every other step within side the advertising of the financial system the railways machine system. In addition to meeting the growing demand for freight and passengers on the forthcoming Nigeria Standard Gauge Railway Service, the project is critical because it can manufacture 500 waggons per year once it is finished. The factory is projected to provide opportunities for employment for Nigerians and help the government achieve its goal of developing local content capabilities. Nigeria will be able to produce rolling stock for its own use as well as the use of other African nations after the project is done, which is expected to create around 5,000 employment.

The Managing Director, Nigerian Railway Corporation (NRC), Mr FidetOkhiria, who spoke on the aggressive rail policy of the present administration, expressed satisfaction at the commitment of government toward railway infrastructure in the country. Okhiria observed that the efforts were yielding results as many Nigerians now have opportunities to travel and move their goods via railways across the country. According to him, aside being capable of easing the strain on the country's road network; rail transportation is safer, more reliable and economical. He said this was particularly in terms of managing mass cargo movement within the country's major cities as it enabled seamless transportation that engenders robust economies.

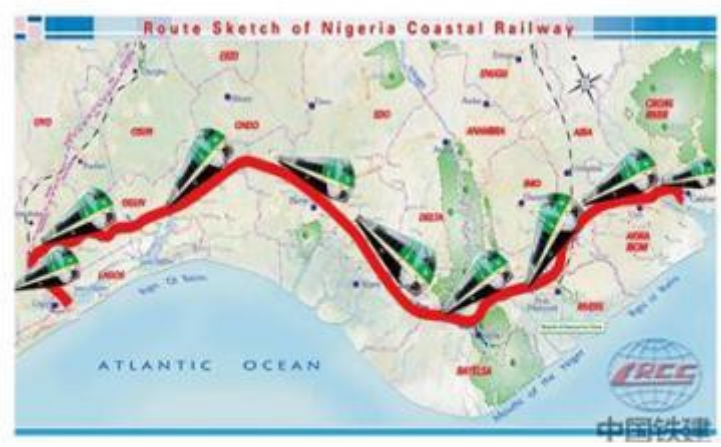
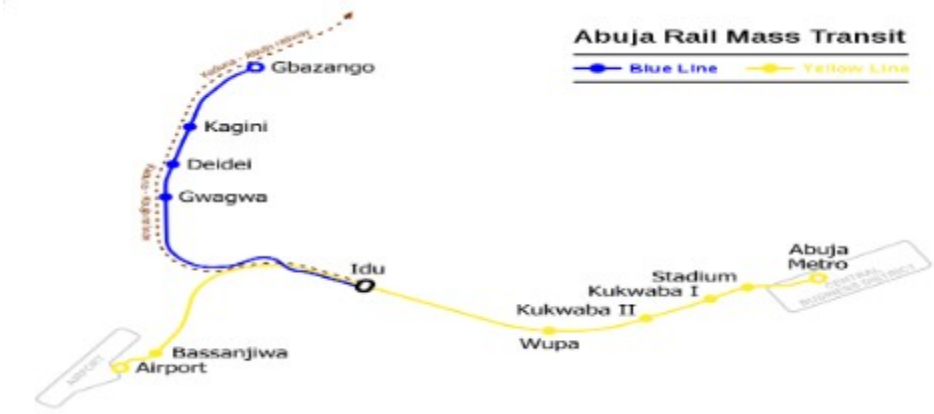


Figure 1-7 The Abuja metro line platform

“ The railway transportation system generates employment and helps cities expand and thrive. Having an effective train company is a well-known fact that encourages the flow of people and heavy freight. As a consequence, transportation costs will be lower, lowering the cost of local



goods and raising the level of life.’’

Figure 1-8 Abuja B&Y Line map.

2.2 Technical and economic characteristics of railway passenger transport

In many countries across the world, railways have played a significant role in the economic, social, and political development of their peoples. Rail transportation requires a significant financial investment compared to other means of transportation; nevertheless it is not our primary source of transportation. It accounts for 40-60% of the total number of people and items that visit our site. The following are the passenger rail transportation's technical and monetary characteristics:

- Providing an essential mode of transportation for the general population, railroads serve as a vital public utility. a fact

A public software carrier calls for safety and investments through government.

Transportation is an critical manner of the stream of humans and items,

Import and export items, State visit, International convention and soon.

- • Railways in Nigeria enjoy a monopoly. Railways Department of both the Central Government is in charge of rail delivery. This delivery sector is off-limits to any non-private operator.
- Land purchases, track laying, station and shed construction, vehicle purchases and other large-scale railway projects all need significant financial outlays. The bulk of these investments can't be made by an unmarried individual.
- In order to give green delivery Carrier, the trains need certain powers. For the purchase of land, construction of bridges, and operation of railways, railroads need exclusive ownership rights.
- Passengers and goods visitors are charged different rates by the trains. The same prices apply to everyone in the nation, regardless of where they live. Individuals and the general public alike have equal access to rail services.
- As soon as the railroad tracks are set down, they can no longer be utilised for any other purpose. In other words, train tickets cannot be exchanged for cash.
- In terms of economics, they include: It's possible to carry raw materials like paper, wood and grain (as well as people and freight) across long distances with rail transportation (cars,

agricultural equipment, etc.). A typical domestic rail freight haul in the United States was 1,300 kilometres, compared to 700 kilometres for vehicles. As a result of intermodal integration, rail transportation has become more segmented and specialised. As a subsystem, intermodal rail usually connects the main port entrances to the inland areas.

- In terms of cargo carrying capacity, rail is unsurpassed on land, with a wagon's capacity exceeding 100 tonnes, three times that of a vehicle. Economies of scale may be achieved by assembling unit trains and stacking the containers two high if clearance allows.
- In terms of economics, rail transportation is expensive to produce and maintain, while shipping prices drop with distance and weight. As the returns on investment rise, it becomes more and more capable of handling spikes and increases in traffic. Expenses are also raised by transshipments (which include loading and unloading) and train assembly. Labor (up to 60 percent), locomotives and waggons (16 percent), fuel, maintenance plus equipment make up the rest of the operational expenses for rail (24 percent).
- • Benefits. In many countries, the rise of rail transportation coincided with a rise in industrialisation, as was the case in the United States. In North America, wherein rail transportation was a major component in territorial expansion as in late 19th and early 20th centuries, it also hastened economic growth and people settlements. Road transportation uses four times the energy per tonne-kilometer than rail transport does. An major source of employment is provided by rail transportation. Construction of such rolling material, rail installation, material maintenance, rolling material operation, and management are all examples of industrial activity. Steel and transportation engineering are two industries that are impacted by rail transportation. As the second-safest means of transportation after air travel, rail safety is equally critical.
- • Regulation. In many nations, government subsidies helped to establish rail transit as a reliable mode of transportation. Governments poured money into as many train projects as possible in order to meet the financial needs of the whole nation. Many rail monopolies have been formed as a result, but they have forced their own routes on the infrastructure. Many train lines, on the other hand, were privatised and operated by private companies.

2.3 Advantages of railway transportation

1. **Dependable:** The finest gain of the railway delivery is that it's miles the maximum Reliable mode of delivery as its miles the least laid low with climate situations including Rains, fog etc. as in comparison to different modes of delivery.
2. **Better Organized**: The rail delivery is higher organized than some other shape of Delivery. It has constant routes and schedules. Its provider is greater certain, uniform and everyday in comparison to different modes of delivery.
3. **High Speed over Long Distances:** Its pace over lengthy distances is greater than some other Mode of delivery, besides airways. Thus, it's miles the exceptional preference for lengthy distance traffic.
4. **Suitable for Bulky and Heavy Goods**: Railway delivery is economical, faster and
   Exceptional ideal for wearing heavy and cumbersome items over lengthy distances.
5. **Cheaper Transport:** It is a less expensive mode of delivery in comparison to different modes of transport. Most of the working expenses of railways are in the nature of fixed costs. Every increase in the railway traffic is followed by a decrease in the average cost. Rail transport is economical in the use of labour also as one driver and one guard is sufficient to carry much more load than the motor transport.
6. **Safety**: Railway is the safest form of transport. The chances of accidents and breakdowns of railways are minimum as compared to other modes of transport. Moreover, the traffic can be protected from the exposure to sun, rains, snow etc.
7. **Larger Capacity**: The carrying capacity of the railways is extremely large. Moreover, its capacity is elastic which can easily be increased by adding more wagons.
8. **Public Welfare**: It is the largest public undertaking in the country. Railways perform many public utility services. Their charges are

based on ‘charge what the traffic can bear’ principle which helps the poor. In fact, it is national necessity.

9. **Administrative Facilities of Government**: Railways provide administrative facilities to the Government. The defence forces and the public servants drive their mobility primarily from the railways.
10. **Employment**: The railways provide greater employment opportunities for both skilled and unskilled labour. Over 25000 people are depending upon railways for their livelihood.

2.4 Major operations problems facing railway development in Nigeria

There are many major issues facing Nigeria's railroads that are discussed in this portion of the study. These are some examples:

2.4.1 Poor funding and huge operating losses

Nigeria's railway system has deteriorated because of inadequate government funding and bad administration by the Nigerian Railway Corporation (NRC). The Federal Government has invested and allocated funding to this sector in favour of the road transportation sub-sector, which has benefited greatly. The government's indifference and lackadaisical response to the NRC's difficulties are to blame for this scenario (Filani and Adesanya, 2010). The rail transportation subsector receives just one-fifth of the transportation sector's funding. It is true that the railway system has deteriorated significantly due to a lack of funding to maintain rails, train equipment, and maintenance facilities in decent operational order. (2010 Draft National Transportation Policy). Despite earning just a tiny amount of cash each year, the NRC's pension provided

NRC Annual Report, 2009). It had an average operating loss of 13% from 1995 to 2001. (and as high as 52 percent in 1995). Between 2004 and 2008, this percentage grew to 34.2 percent (Five Year Financial Summary of NRC, 2004-2008).

2.4.2 Poor response to emerging rail transport needs

Since the early 1960s, nothing has changed in terms of the rail transportation network's structure. Because of this near-stagnation in rail development, it has not been possible to connect large metropolitan centres or new growth areas. After the Borno Expansion (Kuru to Maiduguri line) was completed in 1964, the Nigerian economy grew and new development areas arose. Unfortunately, rail lines remained unchanged until the early 1990s, when the Itakpe6 Ajaokuta-Warri rail line building project started. This might be regarded as the third phase of rail line growth. It's a 277-kilometer rail route with a 1435mm standard gauge. In addition, Eleme to Onnedeep-sea port will be connected by a 19-kilometer standard gauge rail line. Annual Report and Statement of Accounts, 1998:116.

2.4.3 Inadequate Locomotives and Rolling Stock and different Facilities;

As a result of a lack of locomotives and rolling stock, the NRC's rail service falls below the NRC level. In 2004, out of a total of 3,987 waggons available in the system, 57.5 percent were faulty, while 36.6 percent were in good working order and functioning. The remainder of the repairs were no longer financially viable. Only 34.6% of the available inventory of 683 coaches was suitable for use. About 70 percent of the NRC's locomotives have reached the end of their useful lives and are no longer operational. A skeletal service can only be provided by the NRC, hence it is limited in its scope of operations. To put it another way, the inventory of locomotives and rolling stock has declined to the point where there are no longer enough waggons to meet the demands of customers. In addition, railroad communication and signalling structures are available for purchase. Despite attempts to upgrade them, they remain very out of date and inadequate.. However, the current shape of the Nigerian railways still influences the performance of the rail sector. It's still made

up of jointed rails that weigh between 30 and 40 kilogrammes per square metre, and the ballast cushion can be as high as 30 centimetres. Light-weight rails continue to limit the weight of the axles they can support, ranging from 12.five tonnes to heaps. For a significant impact, a more advanced tune shape with heavy non-stop welded rails of up to 60 kg/m is required for heavier train masses to be transported (Babatunde, 1988).

2.4.4 **Loss of patronage to the Road Transport Sector;**

It was during the 1960s that the current disparity in modal percentages between rail and street transit began to appear. When the railroads were first established, they were responsible for more over 60% of all freight volume, compared to today's less than 2%. In 1984, the greatest number of passengers was 15.five million, and in 1977, the largest amount of freight was 2.four million metric tonnes. With the help of 2000/1 visits had dropped to two million passengers and fewer than 300,000 metric tonnes of freight. The railway presently owes less than one per cent of the country's land deliveries.

2.4.5 Configuration of track and facilities problem

Low speed, frequent derailments, bad turn-around times for wagons/coaches, and even accidents are all a result of the rail line's worn out rails and high grades. The inability of the Nigerian railroads to complete regular and/or preventative maintenance due to a lack of spare parts and equipment is another major obstacle. Because of this, fewer trains are available for use, which results in a drop in overall service quality.

(1) Weak political will and commitment

One of the biggest obstacles to bringing the Nigerian railway system back to life and making it more efficient is the government's reluctance to commit to implementing and meeting the timelines outlined in recent plans and programmes like the Master Plan for an Integrated Transportation Infrastructure and the 25 Year Strategic Vision.

(2) Other problems

Other problems and challenges facing the Nigerian railways include poor

productivity (and its negative effect on staff morale), retention and maintenance of unremunerated routes, huge wage and pension bills - despite the reduction in staff strength of the NRC from about 45,000 in the 1970s to about 7,000 at the moment, and poor quality service (Elechi, 1998, Odeleye, 2000 and Adesanya, 2005)

Chapter 3 Evaluation model of railway passenger transport service quality and case analysis

3.1 Evaluation Indicator

It is essential that we examine the features of Nigeria's railway passenger transportation, as well as the country's transportation demand and also the railway transport company's capability, before constructing an assessment indicators system. The following are some key indicators for evaluating the quality of rail passenger transport service, which are based on the notion of passenger transportation service quality.

3.1.1 Ticket

Three key factors are included in the ticket: the ease of purchasing tickets, the attitude of ticket employees, and the efficiency of a ticket staff.. In order to travel on a certain rail network, the bearer must have a valid ticket issued by the railroad company. In and outbound routes to the workplace should be easy for travellers. When it comes to handling client requests and executing orders, travellers expect a well-organized train ticket office. Direct dealings with passengers ought to be effective and efficient.

3.1.2 Cleanliness

The cleanliness of the station and the operational condition of the train are the two most important indications of cleanliness. Passengers will always prefer a clean transportation option if cleanliness is a factor in the train service quality. Nobody enjoys being around filthy people. To define cleanliness, consider the cleanliness and overall condition of the

seats, the cleanliness of the restrooms, the cleanliness of the stations, as well as the upkeep and decorum of the stations itself.

3.1.3 Service facilities

Service facilities include 3 senior indicators: service facilities on the train, service facilities in the station and overall environment feeling. Passengers can easily use the toilets on the train. Safety lockers, waiting rooms, for the convenience of the railway passengers, for them to keep their luggage in safe custody. Passengers can also wait for few hours at waiting rooms for free by producing journey ticket. Overall environment is well beautified for conducive relaxation and security before boarding. And the platforms are kept clean before arrival/departure of any train.

3.1.4 Information

On-board information and information on other modes of transportation are two of the most important markers of information. To ensure a comfortable and safe trip, there are first aid and other medical services on board. As a result of the information given, an automated system should be used in order to offer public transportation consumers with information regarding public transportation services in terms of their type and status, either visually or verbally.

3.1.5 Others

Others includes 3 senior indicators: available assistance, refreshments facilities and punctuality of staffs. Other as it is clearly stated are numerous like passenger assistance service for older and disable passenger travelling on the rail network so, on and off of the train will be an assistance render, free wifi services, while also punctuality the fact or quality of the railway staff to appear in the station on time to carry out their respective tasks in other to give an efficient and effective service.

Using the information from the above, we can devise a method for assessing the quality of Nigeria's rail passenger transportation services.

Table 3-1 Evaluation indicator system

Primary indicator	Senior indicator
Ticket (C_1)	Convenience of ticket purchase(C_{11})
	Attitude of ticketing staffs(C_{12})
	Efficiency of the ticketing staffs(C_{13})
Cleanliness (C_2)	Cleanliness in the station(C_{21})
	Train working condition(C_{22})
Service facilities (C_3)	Service facilities on the train(C_{31})
	Service facilities in the station(C_{32})
	Overall environment feeling(C_{33})
Information (C_4)	On board information(C_{41})
	Information on other types of transports(C_{42})
Other (C_5)	Available assistance(C_{51})
	Refreshments facilities(C_{52})
	Punctuality of staffs(C_{53})

3.2 Fuzzy comprehensive evaluation model of railway passenger transport service quality

3.2.1 Evaluation grade

For all of the assessment indicators, this article assigns a numerical value to N (Nk), where k = 1, 2,... L,L denotes the percentage of the overall assessment grade. [excellent, very good, good, fair and bad] are the five stages of the statement collective used in this work. This is the equivalent of a [5, 4, 3, 2, 1] on the scale: excellent, very good, good, fair, and poor.

3.2.2 Weight

In this paper, the weights of indicators are determined according to the analytic hierarchy process. Specific steps are as follows:

(1) Construct judgment matrix

AHP uses a pairwise comparison method to construct a judgment matrix. Proportional scale as table3-2shown:

Table 3-2 Scale for the relative importance of AHP

Importance	definition	Meaning description
1	Excellent	Both factors are the same
3	Very good	With two elements, the first is somewhat more essential than the second.
5	Good	Comparing two things, the first is clearly more significant than the second.
7	Fair	When comparing two things, the first is far more important than the second.
9	Poor	When evaluating the relative importance of the two variables, the former comes out on top.
2,4,6,8	Intermediate values of those scales above	
Reciprocal value	When the importance scale of factors i and j is ^{aij}, then the proportional scale value of the importance of factor j and factor ^{aji} =1/^{aij}	

Table 3-3 Matrix format table

Criteria	A1	A2	A3	A4	A5
A1	1	a_{12}	a_{13}	a_{14}	a_{15}
A2	$1/a_{12}$	1	a_{32}	a_{42}	a_{52}
A3	$1/a_{31}$	$1/a_{23}$	1	a_{43}	a_{53}
A4	$1/a_{41}$	$1/a_{24}$	$1/a_{34}$	1	a_{54}
A5	$1/a_{51}$	$1/a_{25}$	$1/a_{35}$	$1/a_{45}$	1

According to the analysis and comparison of the evaluation index system of passenger service quality, the relative importance of each subsystem can be obtained.

(2) Hierarchical single sorting and consistency check

Using the normalization method, the single-level ranking and the consistency test of each judgment matrix are carried out. Consistency index (*CI*) and consistency ratio (*CR*) can be calculated by:

$$CI= \frac{Lambda\ M}{N-1}$$

Table 3-4 Random Consistency Index (RI)

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

If the consistency ratio CR is less than 0.1, the judgement matrix has passed the consistency test and has a sufficient level of consistency. Any

other way necessitates consulting with a professional to redo the judgement matrix. (3) Hierarchical total ordering and consistency check

According to (2), the composite weight W of each tertiary index may be calculated by multiplying the weight of each tertiary index by the weight of each secondary index by the overall aim, as determined by the single-level ordering. We can derive the weight vectors of the five primary indicators W=(W1, W2, W3, W4, W5) and the five senior indicators W I =(W i1, W 2,..., W I ni), (i=1, 2, 3, 4, 5), using the three steps (1), (2), and (3) listed above. The weight vectors of the five primary indicators and the five senior indicators W I =(W i1, W 2,..., W I ni), (i=1,

3.2.3 Survey Questionnaire

Goggle form online surveys were used to create a survey questionnaire on the quality of train services in the north central area of the country. The service between the Abuja-Kaduna train station was halted due to a terrorist assault, but the station was still used for analysis in order to enhance the quality of service and security at the station and throughout the voyage. Of the 200 questionnaires issued, only 152 were returned for analysis, thus the results will be based on those responses. All thirteen senior indicators get a certificate of significance. The higher the cost, the higher the passenger's Pleasure score is assigned for each feature of the service provider. One passenger may rate a provider characteristic based on how he or she feels about it whether he or she thinks it's excellent, good, or fair. This was followed by the creation of a section in which customers may share their thoughts on how to enhance passenger transportation service.

According to the statistical results of the questionnaire, five primary indicators (C_1, C_2, C_3, C_4, C_5) was used for the evaluation matrix of the 5(five) groups of senior indicators.

$$R_i = \begin{bmatrix} r_{11}^i & r_{12}^i & \cdots & r_{15}^i \\ r_{21}^i & r_{22}^i & \cdots & r_{25}^i \\ \cdots & \cdots & \cdots & \cdots \\ r_{n_i 1}^i & r_{n_i 2}^i & \cdots & r_{n_i 5}^i \end{bmatrix}$$

Of which：

i denotes i primary indicator；(i=1, 2, 3, 4, 5).

n_i indicates the number of senior indicators corresponding to the i primary indicator as shown in table 3-1 : n_1=3；n_2=2；n_3=3；n_4=2；n_5=3.

3.2.4 Level 1 comprehensive evaluation

Each group was evaluated by single factor. According to the weight of each senior indicator, we make a comprehensive evaluation on the five (5) groups of senior indicators namely:

$B_i = W_i \times R_i$, (i=1, 2, 3, 4, 5).

Let $B_i = (b_{i1}, b_{i2}, b_{i3}, b_{i4}, b_{i5})$, ($i$=1, 2, 3, 4, 5).

3.2.5 Fuzzy comprehensive evaluation

Let $B = \begin{bmatrix} B_1 \\ B_2 \\ B_3 \\ B_4 \\ B_5 \end{bmatrix}$

B is the total judgmental matrix.

We can get $B=\begin{bmatrix} b_{11} & b_{12} & b_{13} & b_{14} & b_{15} \\ b_{21} & b_{22} & b_{23} & b_{24} & b_{25} \\ b_{31} & b_{32} & b_{33} & b_{34} & b_{35} \\ b_{41} & b_{42} & b_{43} & b_{44} & b_{45} \\ b_{51} & b_{52} & b_{53} & b_{54} & b_{55} \end{bmatrix}$

Combine with the weight value of the 5 primary indicator $W=(w_1, w_2, \cdots w_5)$, the synthetic evaluation vectors can be obtained by fuzzy operation $\overline{B}=W\times B$.

Let $\overline{B}=[b_1, b_2, b_3, b_4, b_5]$. If $\sum_{j=1}^{m} b_j \neq 1$, normalization is required according to the comprehensive evaluation vector. Let $b^* = \max\{b_1, b_2, \cdots, b_5\}$, which takes the corresponding comment grade to the evaluation of the quality of service of the railway passenger transport.

3.3 Case analysis

3.3.1 Weight of all the indicators

This paper employs five experts to evaluate the weight of each indicator. Experts first conducted pair-wise comparative evaluation of the 5 groups of senior indicators, and then conducted pair-wise comparison evaluations of the 5 primary indicators to obtain 6 judgment matrices. The following is an example of the weight calculation process for the five primary indicators.

Table 3-5 Pair-wise comparison matrix of the primary indicator

Criteria	Ticket	Cleanline	Service	Informati	Other

		ss	facilities	on	
Ticket	1	1/3	3	4	5
Cleanliness	3	1	5	6	7
Service facilities	1/3	1/5	1	2	4
Information	1/4	1/6	1/2	1	2
Other	1/5	1/7	1/4	1/2	1
SUM	4.78	1.84	9.75	13.50	19.00

Table 3-6 Normalized matrix of the primary indicator

Criteria	Ticket	Cleanliness	Service facilities	Information	Other	Criteria weight
Ticket	0.2	0.2	0.3	0.3	0.3	0.2
Cleanliness	0.6	0.5	0.5	0.4	0.4	0.2
Service facilities	0.1	0.1	0.1	0.1	0.2	0.2
Information	0.1	0.1	0.1	0.1	0.1	0.2
Other	0	0.1	0	0	0.1	0.2

Table 3-7 Consistency ratio check of the primary indicator

Criteria	Ticket	Cleanliness	Service facilities	Information	Other	**Criteria weight**	Total	Total/ weight
Ticket	0.20	0.30	0.53	0.30	0.18	0.30	1.51	4.00

Cleanliness	0.60	0.50	0.50	0.40	0.40	0.48	2.40	10.56
Service facilities	0.10	0.10	0.10	0.10	0.10	0.10	0.50	0.75
Information	0.00	0.10	0.00	0.00	0.10	0.04	0.20	0.16
Other	0.00	0.10	0.00	0.00	0.10	0.04	0.20	0.26

Therefore,

$$\lambda_{max} = 16.69/5 = 3.34$$

$$CI = -0.42/1.12 = -0.4$$

$$CR = -0.4 < 0.10$$

According to (1), (2) and (3), the weight of senior indicator can be calculated. From this, the weight of each indicator can be obtained, as shown in Table 3-8.

Table 3-8 Weight of all the indicators

Primary indicator		Senior indicator	
Name	Weight	Name	Weight
Ticket (C_1)	0.30	Convenience of ticket purchase(C_{11})	0.31
		Attitude of ticketing staffs(C_{12})	0.43
		Efficiency of the ticketing staffs(C_{13})	0.26
Cleanliness (C_2)	0.48	Cleanliness in the station(C_{21})	0.41
		Train working condition(C_{22})	0.59

Service facilities (C_3)	0.10	Service facilities on the train(C_{31})	0.51
		Service facilities in the station(C_{32})	0.38
		Overall environment feeling(C_{33})	0.12
Information (C_4)	0.06	On board information(C_{41})	0.49
		Information on other types of transports(C_{42})	0.51
Other (C_5)	0.04	Available assistance(C_{51})	0.29
		Refreshments facilities(C_{52})	0.32
		Punctuality of staffs(C_{53})	0.39

3.3.2 Survey questionnaire

200 sample of the questionnaire was distributed, of which 152 where return to be considered for analysis. Based on the calculation and analysis of the valid questionnaire, the passenger opinion survey data of the 13 senior indicators, such as Table 3-9.

Table 3-9 Passenger opinion statistics

Name	□□					Total
	Excellent	Very good	Good	Poor	Fair	
Convenience of ticket purchase(C_{11})	10.5	0.00	51.3	28.3	9.9	1.000
Attitude of ticketing staffs(C_{12})	5.9	24.3	40.1	19.7	9.9	1.000
Efficiency of the ticketing staffs(C_{13})	2.0	24.3	39.5	23.0	11.2	1.000
Cleanliness in the station(C_{21})	16.4	0.00	46.1	27.6	9.9	1.000
Train working condition(C_{22})	23.7	0.00	48.0	25.0	3.3	1.000
Service facilities on the train(C_{31})	10.5	0.00	43.4	32.2	13.8	1.000
Service facilities in the station(C_{32})	25	0.00	38.8	22.4	13.8	1.000
Overall environment feeling(C_{33})	9.9	0.00	46.7	28.9	14.5	1.000
On board information(C_{41})	7.9	24.3	36.2	17.8	13.8	1.000

Information on other types of transports(C_{42})	6.6	0.7	48.7	33.6	10.5	1.000
Available assistance(C_{51})	9.9	0.00	47.4	29.6	13.2	1.000
Refreshments facilities(C_{52})	13.2	0.00	45.4	24.3	17.1	1.000
Punctuality of staffs(C_{53})	9.9	34.2	28.9	17.8	9.2	1.000

According to the above table, we can get the corresponding 5 primary indicator (C_1, C_2, C_3, C_4, C_5) and evaluation matrix of the five 5 groups of senior indicator R_1, R_2, R_3, R_4, R_5.

3.3.3 Comprehensive evaluation

According to 3.2.4 and 3.2.5, we can get:

$$\overline{B}=[0.09,\ 0.32,\ 0.28,\ 0.21,\ 0.10]$$

$b^*=b_2=0.32$.

According to the principal of maximum membership, from the comprehensive evaluation of the quality of service by railway, the passenger comprehensive evaluation is very good. 32% said they were “very good”, 28% of the passenger was “basically good”, while 21% and 10% said “poor” and “fair” respectively.

CHAPTER 4 Strategy to improve the service quality of railway passenger transportation in Nigeria

4.1 To establish the concept of passenger quality

The notion of passenger quality should be established by all railway departments, kinds of work, and individuals involved in passenger transportation. Planning, scheduling, and management staff in transportation organisations as well as front-line employees should take the lead in breaking down professional barriers and other barriers that separate the upper and lower echelons of their professions. This will help them fully embody the "all for Passenger thought" of passenger quality in their own roles as well.

4.2 Integration of passenger quality standards

I. A set of work standards for passenger quality has emerged as a consequence of the varying demands of the airline's professional management. Therefore, it is essential that work standards, which are mostly based on passenger perceptions, be implemented throughout all departments.

II. I. Streamline the railway schedule. For example, based on passenger flows across railway bureaus and railway station tubes, a bus operation map is compiled. Then, relevant equipment and

facilities are adapted to this bus diagram so that the real map is transformed into the market map, which is a more accurate representation of reality.

III. II. Improve passenger comfort and convenience. Equipment and amenities should be the foundation for passenger satisfaction aboard trains. This includes the design and fabrication of facilities and equipment for passenger transportation, as well as the building, maintenance, and replacement of accessories. To provide an environment that is pleasing to the eye, functional, and inviting for passengers, as well as one that is simple to operate and maintain for the staff that convey them.

IV. Third, improve the living conditions for the employees. For the sake of improving safety, train doors and restroom doors should be utilised. At the same time, problems with long-distance railway marshals without offices and other difficulties like a broad range of radios a machine switch and air conditioning should be addressed.

V. The safety facilities must be at their best. Not only is it difficult to operate, but it's also simple to abuse the safety hammer that's in the compartment with the hand brake. Improvement should be a priority in vehicle design and production going forward.

VI. V. Service facilities that are the best they can be. Improvement should be provided as quickly as feasible to some of the station amenities that have been in use for a long period of time, such as tunnels, flyovers or ticket halls. Some amenities for passenger services, such as better seats for the high-level straight, should be equipped with train power supply equipment. Human services should be the foundation upon which all aspects of service facilities are developed, from concept to completion. At the same time, to

make quality standards easier to use and maintain.

VII. To improve the quality of service. Passenger quality can be established through market-oriented operation plans and user-friendly infrastructure, but also through the creation of relevant departments with daily passenger quality work standards and a focus on infrastructure and equipment maintenance, replacement and operation optimization through continuous improvement in the quality of relevant staff.

4.3 Integration of passenger service capabilities

I. To put it another way: Passenger service capacity encompasses everything from the number of service employees to the number of trains that can handle a wide range of traffic. Integrating these elements into passenger service capacity would considerably improve the quality of service for train passengers.

II. I. Improving the quality of passenger service as a whole. For better service, all departments serving passengers should report to the passenger sector, which will act as a coordinating body to coordinate efforts to provide a more cohesive whole.

III. II. To improve the system for evaluating the performance of passengers. From the leadership of the professional system, the assessment of the business skills of the passenger service department staff, based on the distribution of skills, the work of the quality of work assessment paid labour compensation, its work in the labour attitude, operating standards and operating standards, Initiation of the primary analysis of passenger service. The "three by one" configuration (passenger crew, marshals, seizure) should be formed in the station to guarantee the formation of service

together, as should the "station" (station, station police station).

IV.

V. The third step is to improve the system for managing passengers. It is necessary to establish a long-term comprehensive inspection programme to monitor the system and provide guidance and assistance to the scene in order to solve problems in the work to correct existing problems and make it better for passengers. This programme is led by the passenger transportation department. At the same time, in order to improve the quality of passenger transportation, the construction of comprehensive ability, prevent checking the lengthy, overlapping; account of the diversity, repeated.

4.4 Improve the quality of workers

I. Enhance the quality of the workforce's organisational structure. High-level marketing and management talent, as well as psychology, etiquette and other specialists, should be brought in to boost passenger service's talent structure.

II. To improve the business acumen of the employees. Educate and develop the work ethics and professionalism of the workforce, in particular the members of the passenger service sector. Increase passenger service staff service knowledge and standards training at the same time as the railway passenger product innovation.

III. Enhance the standard of service evaluations, thirdly. Rather than relying solely on internal management to assess passenger service work and ignore the realities of external passenger oversight, moving forward with scientific and rational assessment based on indicators necessitates a shift away from the past practise of using

passenger satisfaction as the primary metric and scale.

IV. Increase the reward system. Workers' excitement for better pay and benefits may be stoked by re-evaluating the effectiveness of light material incentives, enacting stiff penalties for their misuse, and otherwise re-evaluating the effectiveness of light material incentives.

4.5 Innovative service concept

I. Introduce the 'customer first' philosophy within the company. Highlighting the significance of passenger service activities and passenger service quality. To correct erroneous assumptions about the role of the passenger as the center of passenger service work and to educate all levels of management and employees, particularly those working in passenger service, on the current pressures facing the railroad and their own shortcomings.

II. The notion of maximizing customer value should be established. According to Philip Kotler, a customer's purchase of a product is influenced by the customer's transfer value, which includes the total customer value (product value, service value, staff values, image values) but rather total customer costs (including currency prices, Time cost, energy cost, physical cost). Demand for rail passenger traffic has grown beyond merely satisfying basic needs since the efficiency of transportation is so clear. The need for better travel safety, better travel conditions, and shorter travel times is clearly increasing. The In order to accomplish "customer value maximization," which may serve as a passenger service aim but also measure the quality of passenger service work scale, the emphasis of service passengers is to continually enhance the overall customer

value and minimise the total customer expenses.

CHAPTER 5 CONCLUSION AND FUTURE WORK

5.1 Conclusion

By studying the present-day passenger carrier high-satisfactory of the Nigeria railway gadget, they have a look at Measures the extent of carrier high-satisfactory within side the Nigeria rail community; through shooting carrier enjoy within side the north relevant stations in the country. Fuzzy- AHP principle turned into used to degree six Carrier dimensions from the carrier high-satisfactory within side the beyond 15 years. The carrier high-satisfactory of Passenger transportation is a totally vast detail for the educate operation, team management, And the way to compare it, is an energetic state. So consequently, this thesis deliberates at the present-day Nigeria railway passenger transportation carrier high-satisfactory with a multi-stage fuzzy artificial Principle to assess it railway carrier high-satisfactory. The body paintings turned into carried out to fact-locating statistics Accumulated thru a survey produce to a pattern of railway passengers who choose the used Services. The effects of the software display that One of the proscribing elements on financial Pastime is a useful and fee powerful transportation gadget. Injection of personal price range into The Nigerian railway gadget will increase the Nigerian economy. Applied and sustained funding In a Nigerian railway community ought to pave the manner for improvement of a sub-local Global railway hall in West Africa early within side the twenty first century. Railway delivery in Nigeria is inefficient and has infrequently evolved in any respect over the last one hundred years in comparison to Railways within side the evolved world. This is due each to maladministration through successive Governments and to the dearth of a useful delivery coverage making sure a steady sample of Railway improvement. The 100% possession through the country wide authorities has contributed significantly to this neglect. This article indicates public–non-public partnership as a treatment for the ill Railway gadget in Nigeria so that it will continue growing the nation`s railway gadget to global Requirements for the subsequent millennium with recently intensify effort pour by the present administration.

5.2 Innovations of this paper

I. Entrenched the 'customer first' concept. Emphasizing the importance of service functions and service quality of railway passenger transport. To make all levels of managers and workers, especially passenger service personnel to correctly understand the current pressure on the railway and their own shortcomings, change the incorrect ideas, the passenger as the core of passenger service work.

II. Entrenched the 'customer value maximization' concept. Philip Kotler believes that the customer's purchase of the product depends on the customer's delivery value, the customer transfer value is the total customer value (including product value, service value, staff value, image value) and total customer costs (including currency prices, Time cost, energy cost, physical cost). As the time and space efficiency of transportation is very obvious, the demand for rail passenger traffic is no longer just the satisfaction of the core demand. The demand for improving travel safety, improving travel environment and shortening travel time is obviously enhanced. The Therefore, the focus of service passengers is to continuously improve the total customer value and reduce the total customer costs, to achieve 'customer value maximization', which can serve as a passenger service objective, but also measure the quality of passenger service work scale.

5.3 Research limitation and future work

This Paper was limited to railway passenger transportation and service quality of Nigerian railway passenger transportation using Fuzzy analytical hierarchy process (FAHP), suggestions on improvement of

service quality for Nigerian railway. Also, the research was limited to research findings on the internet and journals. There was survey questionnaire data obtained directly from the passengers.

Finally, evaluation of railway passenger transportation is a complex subject and it need to be given more priority. This paper concentrates on the service quality for the Nigerian railway passenger transportation. With the continuous reformation of the railway industry in Nigeria, the passenger and staffs in the railway stations and stations platform should be supervise intensify on how to runs the affairs of the station for an efficient and effective output towards a better service to the passengers.

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